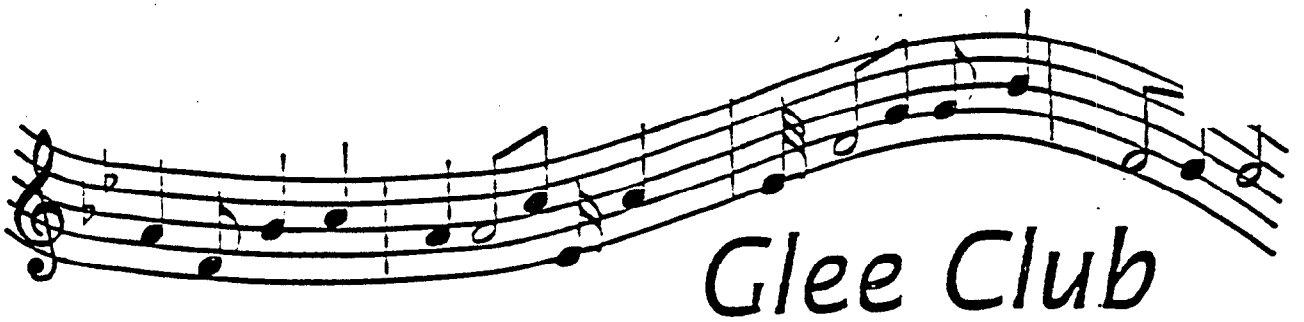
1998

INTERMEDIATE

MATHEMATICS

ANCHOR PAPERS

SESSION 1

Glee Club

SCORE 2

Directions

Numbers *7* **through 10** are **about** a **school Glee Club** preparing for its winter concert Show **all** of your **work** and write your answers **directly** in **this booklet.**

1 **In** preparing for their **winter concert, the Glee Club purchased 5 gallons of paint** to create a backdrop for the stage. The total **bill** for **the** paint was **$109.73, including $5.23 sales** tax. The **club's** sponsor wants to know. the cost of ***one*** **gallon** of paint

To find **the** cost of one **gallon** of paint, **solve** the **equation** ***5n*** + **$5.23** = $109.73, where ***n*** represents **1 gallon** of paint **in** the box **below,** provide the **work** that **shows how** you arrived at your answer.

$5n + \$5.23 = 109.73$
$-5.23 \quad -5.23$
$5n = 104.50$
$\frac{5n}{5} = \frac{104.50}{5}$

$5 \overline{)104.50} = 20.90$

$n = \$20.90$

Correct process

Correct answer

Exemplary Response

Glee Club

SCORE 1

Directions

Numbers 7 through 10 are about a **school Glee Club** preparing for its winter concert **Show all** of your work and **write** your answers **directly** in **this booklet.**

1 In preparing for **their winter concert,** the **Glee Club purchased 5 gallons of** paint to create a **backdrop for the stage.** The total **bill** for the paint **was $109.73, including $5.23 sales** tax. The **club's** sponsor wants to **know the cost of *one* gallon of** paint.

To find the **cost of** one **gallon** of paint, soive **the equation** $5n + \$5.23 = \$109.73$, where ***n* represents 1 gallon** of paint. **In** the box **below,** provide the **work** that **shows how** you arrived at your answer.

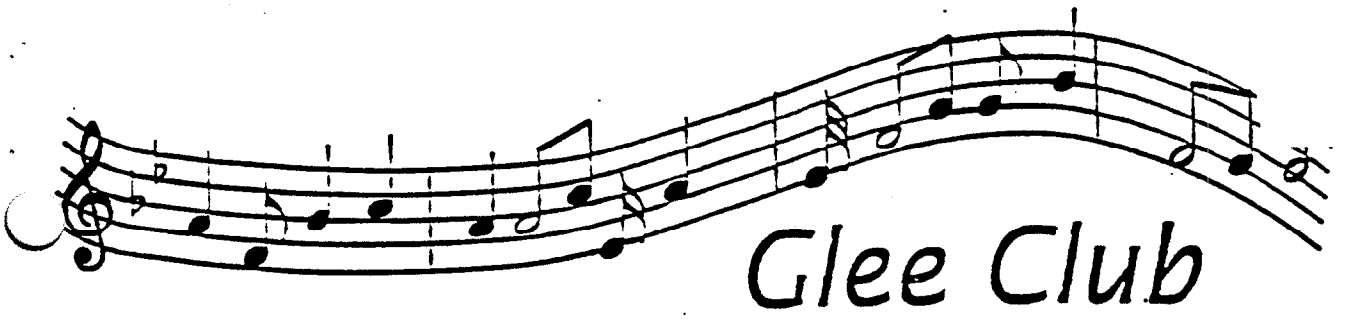
$5n + 5.23 = 109.73$

$-5.23 \quad -5.23$

$\frac{1}{5}5n = 104.5\frac{1}{5}$

$n = \$21.84$

Correct process

Error in computation gives wrong answer

Glee Club

SCORE 0

Directions

Numbers 7 through 10 are about a school Glee Club preparing for its winter concert. **Show all** of your **work** and **write** your **answers** directly in thii **booklet.**

1. In preparing for their winter concert, the Glee Club purchased 5 gallons of paint to create a backdrop for the stage. The total bill for the paint was $109.73, including $553 sales tax. The club's sponsor wants to know the cost of one gallon of paint

To find the cost of one gallon of paint, solve the equation $5n + \$5.23 = \$109.73$, where n represents 1 gallon of paint in the box below, provide the work that shows how you arrived at your answer.

109.73
+5.23
114.96

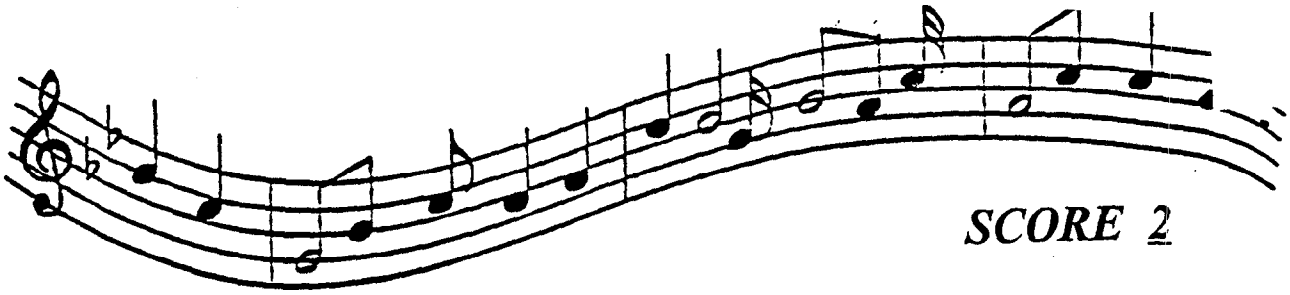
1/1 · 5

22.992 rounded to 23

23

Incorrect answer

Incorrect process added instead of subtracted



SCORE 2

Janette, Carla, and Mijo are performing a special number in costume during the concert. Each of their costumes will require $3\frac{5}{8}$ yards of materiaj for the outfit and another $1\frac{3}{4}$ yards of materiaj for tie hat.

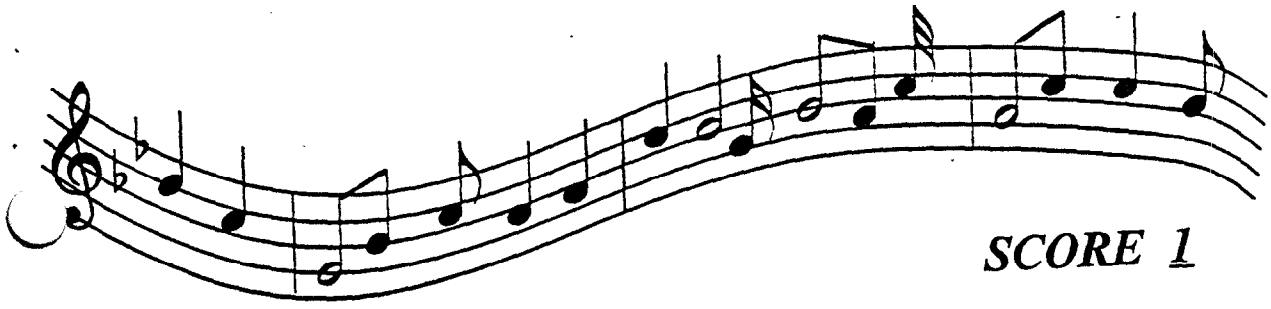
How much materiaj is needed in ajj for the 3 complete costumes? In tie box below, provide the work that shows how you arrived at your answer.

$$\begin{array}{r} 3.625 \\ +\ 1.75 \\ \hline 5.375 \text{ (per person)} \\ \times\quad 3 \\ \hline 16.125 \text{ (all togeither)} \end{array}$$

Correct process

Correct answer

Exemplary Response



SCORE 1

2 **Janette,** Caria, and Miio are performing a special number in costume during the concert. Each of their costumes will require $3\frac{5}{8}$ yards of material for the outfit and another $1\frac{3}{4}$ yards of materiai for the **hat.**

How much material is needed in ail for the 3 complete costumes? In the box below, provide the work that shows how you arrived at your answer.

$3 \times 29/8 = 87/8 = 10.875$

Correct process

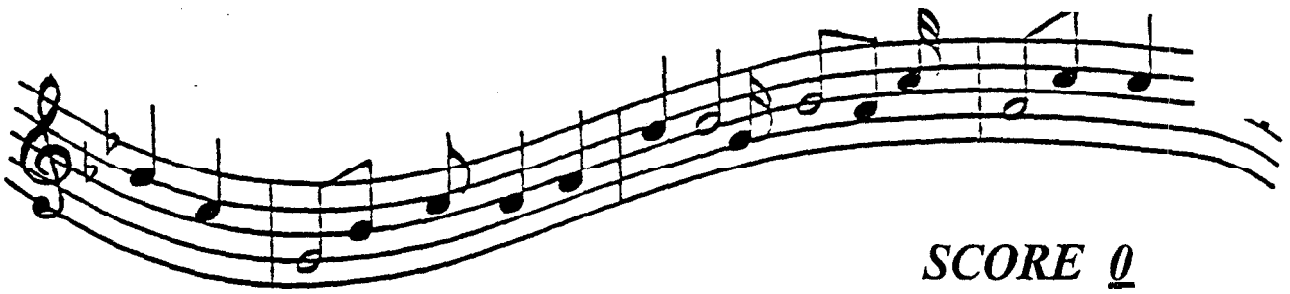
$3/1 \times 7/4 = 21/4 = 5.25$

Error in computation gives wrong answer— didn't carry the 1 from 7 + 5

$$\begin{array}{r} 10.875 \\ 5.25 \\ \hline 16.025 \text{ yards} \end{array}$$

157066

Go On



SCORE 0

2 **Janette, Carla, and Milo** are performing a **special** number in costume **during** the **concert. Each of their costumes will** require $3\frac{5}{8}$ yards of material for the outfit and another $1\frac{3}{4}$ yards of materiai for the hat

How much materiai is needed in ail for the **3 complete** costumes? In the box below, provide the work that shows **how you** arrived at your answer.

$12\frac{5}{8}$

Incorrect answer

$3\frac{5}{8} \times 3$ people $+ 1\frac{3}{4}$ for hat

Incorrect process—multiplied 3 5/8 by 3 and then added 1 3/4, when they should have added 3 5/8 to I 3/4 and then multiplied by 3

Directions

Use the information in the chart below to do Numbers 9 and 10.

The Glee Club kept track of the attendance at each of their 4 performances. At the end of the 4 performances, they had the following information:

A-DANCE PER PERFORMANCE

Performance	Student	Adult
1	75	120
2	95	136
3	110	126
4	100	150

SCORE 2

What was the aduit *mean (average)* attendance at the *concerts?* In the box below, provide the work that shows how you arrived at your answer.

120 + 136 + 126 + 150 532 ÷ 4

Correct process

133

Correct answer

Exemplary Response

Directions

Use the information in the chart below to do Numbers 9 and 10.

3 The Glee Club kept track of the attendance at each of their 4 performances. At the end of the 4 performances, they had the following information:

ATTENDANCE PER PERFORMANCE

Performance	Student	Adult
1	75	120
2	9s	136
3	110	126
4	100	150

SCORE 1

What was the adult mean (average) attendance at the concerts? In the box beiow, provide the work that shows how you arrived at your answer.

120 + 136 + 126 + 150 = 788
+3 1 2 3 4

788 ÷ 4 =

197

Correct process

Error in computation gives wrong answer -added 4 adult performances up to 788 instead of 532, which lead to the wrong answer when they divided by 4

Directions

Use the information in the chart below to do Numbers 9 and 10.

3

The Glee Club kept track of the attendance at each of their 4 performances. At the end of the 4 performances, they had the following information:

ATTENDANCE PER PERFORMANCE

Performance	Student	Adult
1	75	120
2	95	136
3	110	126
4	100	150

SCORE 0

what was the adult mean (average) attendance at the concerts? In the box below, provide the work that shows how you arrived at your answer.

130 It is a # that is in between each of the numbers.

Incorrect answer

No process shown

4 Which grade collected the greatest number of pounds of aluminum cans during the 3-week period? In the box below, provide the work that shows how you arrived at your answer.

Correct process

SCORE 2

Grd 6
11.7
14.75
12.8
39.25

Grd 7
12.1
13.2
14.0
39.30

Grd 8
8.3
17.4
13.5
39.20

Grade 7 *Correct answer*

Session 1

***Exemplary* Response**

4 Which grade collected the greatest number of pounds of aluminum cans during the **3-week** period? **In** the box beiow, provide the work that shows how you **arrived** at your answer.

SCORE 1

6th	7th	8th
11.7	12.1	8.3
14.75	13.2	17.4
+12.9	+14.0	+13.5
39.25	39.3	39.2

Correct process

6th grade won

Error in decimal comparison

Session 1

4 Which grade collected the *greatest* number of pounds of aluminum cans during the 3-week period? In the box below, provide the work that shows how you **arrived** at your answer..

SCORE 0

Incorrect answer

8th grade collected the greatest number.

13.5 aluminum cans
+293 newspapers
306.5

*Incorrect process--adds **aluminum** cans to **newspapers,** no understanding of task*

5. What procedure could you follow *to* estimate the total number of pounds of aluminum cans collected by *all* of the grades at the end of a lo-week period?

SCORE 1

average each grade then multiply that by 10 then add each grades totals together

13.09
3|39.25
-3
09
-9
25
-24
10

13.09
x 10

3.1
3|39.3

13.07
3|39.2
-3
09
-9
20
12

130.9
131.0
+130.7
392.6

rocedure could be to compute the mean (average) all the grades for the three weeks and then multiply is mean (average) by 10 weeks

Session 1

Exemplary Response

5 What procedure could you follow to estimate the total number of pounds of aluminum cans collected by *all* of the grades at the end of a 10-week period?

Take week 2's productivity and multiply it times 5.

SCORE 0

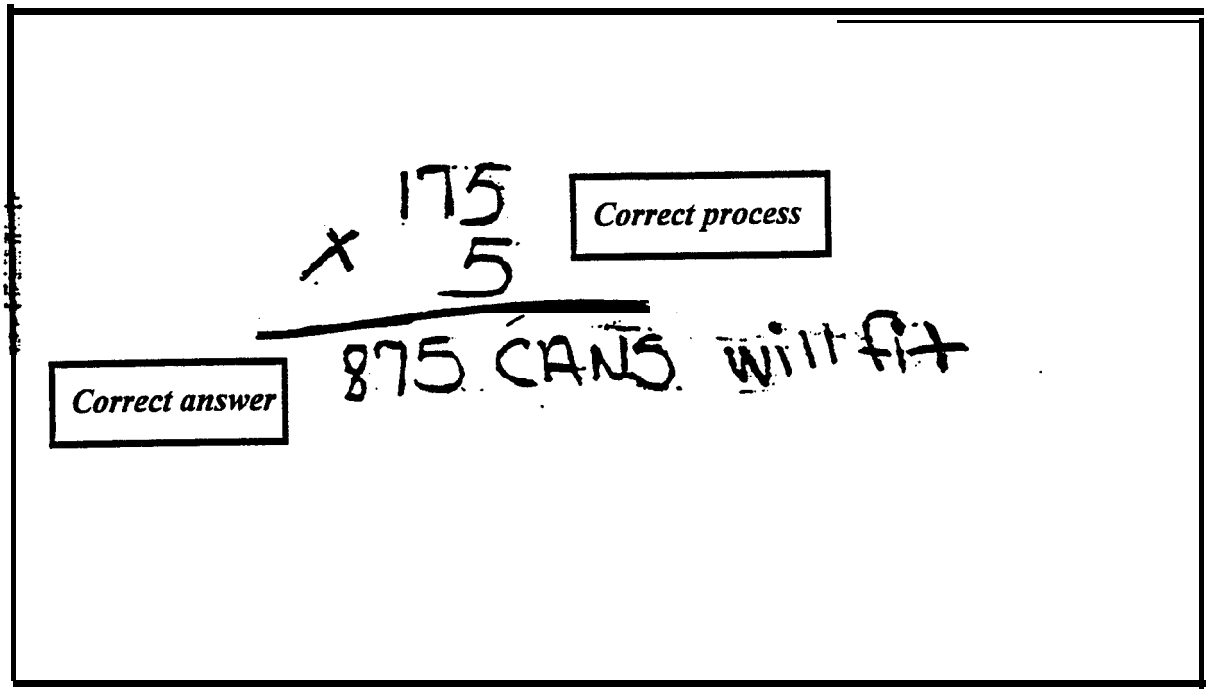
Incorrect answer-no understanding of procedure

Session 1

14

6 Your class has decided to crush the cans to save space. A full-size can is 5 inches tall, while a crushed can is 1 inch tall. If 175 full-size cans will fit into a garbage bag, about how many crushed cans will fit into the same bag? In the box below, provide the work that shows how you arrived at your answer.

SCORE 2



Exemplary Response

6 Your class has decided to crush the cans to save space. A full-size can is 5 inches tall, while a crushed can is 1 inch tall. If 175 full-size cans will fit into a garbage bag, about how many crushed cans will fit into the same bag? In the box below, provide the work that shows how you arrived at your answer.

SCORE 1

875

Correct answer

No process shown

6

Your class has decided to crush the cans to save space. A full-size can is 5 inches tall, while a crushed can is 1 inch tall. If 175 fulkize cans will fit into a garbage bag, about how many crushed cans wiil fit into the same bag? In the box beiow, provide the work that shows how you arrived at your answer.

SCORE 0

incorrect , process-incorrect numbers used

175
x 4
700 cans

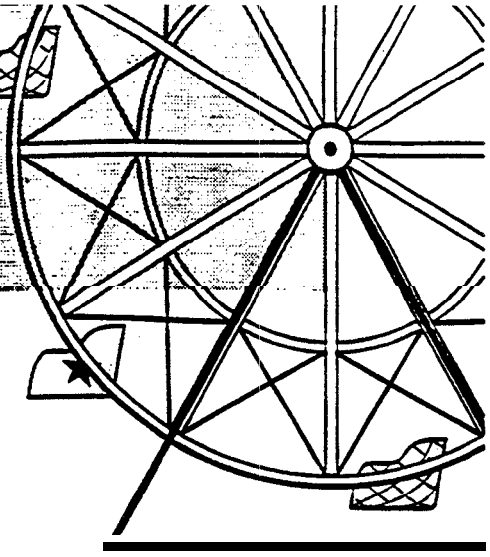
Incorrect answer

Session 1

17

185638

AMUSEMENT PARK



Directions

Numbers **1** through **5** are about an amusement park. Show **all** of your work and write your **answers directly** in this booklet.

7 A famiiy of four **wants** to spend 4 days at the Fun Land amusement park. There are three options for purchasing individual entrance passes for Fun **Land.** The table below shows the prices for the different options.

family of 4 4days

PASS PRICES

Type of Pass	Price
One-day	527.95
Three-day	580.95
Five-day	I f134.95

Which pass or combination of passes will be the *least* expensive for a family of four to purchase during their stay at Fun Land amusement park? **In** the box below, provide the work that shows how you arrived at your answer.

SCORE 2

Correct process

27.95
+80.95
108.90
4
x
435.60

134.95
x 4
539.80

27.95
x 4
111.80
4
x
447.20

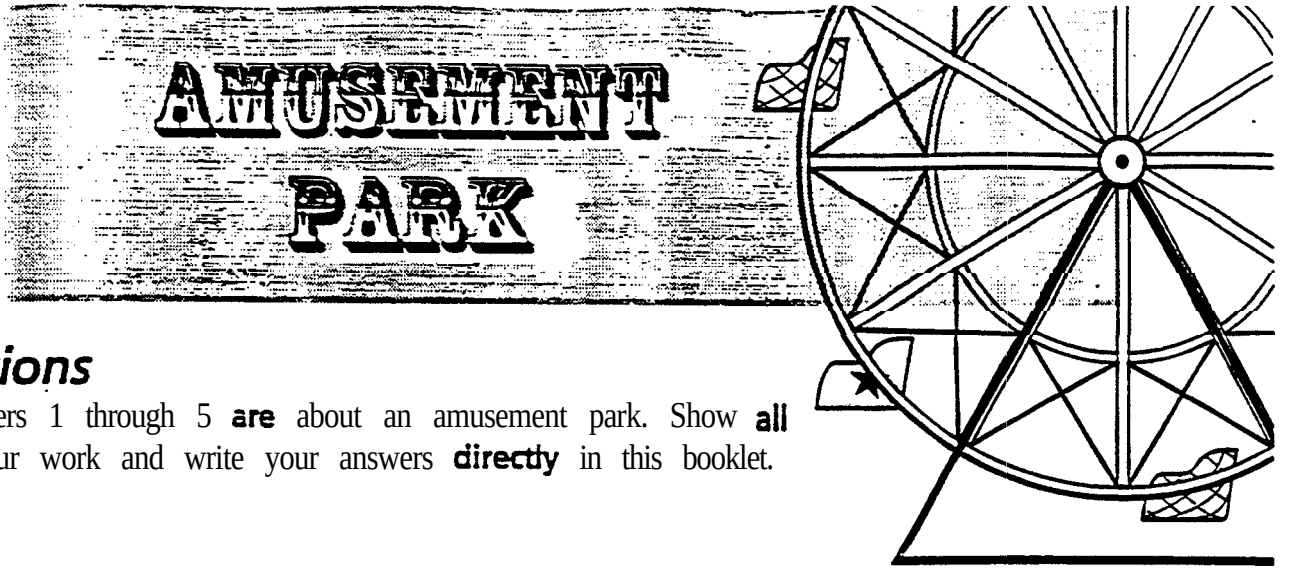
Correct answer

Purchase 4 one-day passes and 4 three-day passes

120128
74

Exemplary Response

Go On



Directions

Numbers 1 through 5 **are** about an amusement park. Show **all** of your work and write your answers **directly** in this booklet.

7 A family of four wants to spend 4 days at the Fun Land amusement park. There are three options for purchasing **individual** entrance passes for Fun Land. The table below shows the prices fcr the **different** options.

SCORE 1

PASS PRICES

Type of Pass	Price
One-dav	$27.95
Three-day	$80.95
Five-dav	$134.95

Which pass or **combination** of passes wiil be the ***least*** expensive for a family of four to purchase during their stay at Fun Land amusement park? In the box below, provide the work that shows how you arrived at your answer.

Buy 1 one day pass and 1 Three day pass

Correct answer

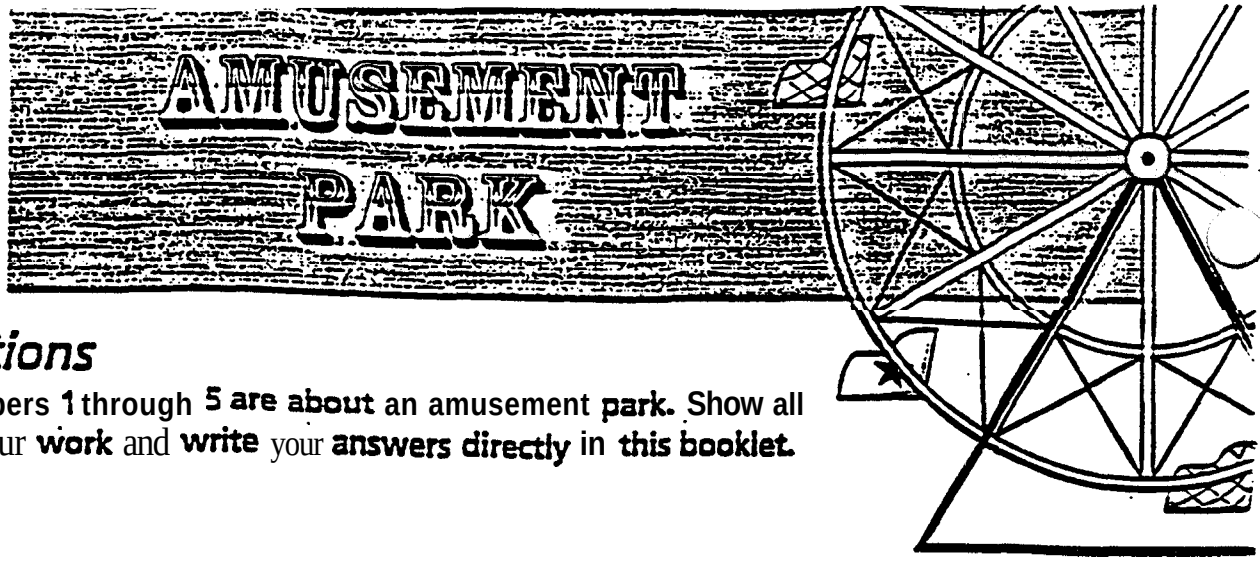
27.95+80.95=108.90

Partial process-shows work to get the 1 one-day pass and the 1 three-day pass

The response fails to Show a comparison

165267

Go On



Directions

Numbers 1 through 5 are about an amusement park. Show all of your work and write your answers directly in this booklet.

7 A family of four wants to spend 4 days at the Fun Land amusement park. There are three options for purchasing individual entrance passes for Fun Land. The table below shows the prices for the different options.

PASS PRICES

Type of Pass	Price
One-day	$27.95
Three-day	$80.95
Five-day	$134.95

SCORE 0

Which pass or combination of passes will be the *least* expensive for a family of four to purchase during their stay at Fun Land amusement park? In the box below, provide the work that shows how you arrived at your answer.

The three-day
$134.95
$80.95
$54 a piece

Incorrect process

Incorrect answer

8

Use the information in the **table** on Page 4 to **complete this problem. If** the trend **in the** cost of passes continues, **what do you predict would** be the **cost** of a one-day pass in the year **2005? In** the box below, **explain** how you arrived at **your** answer.

SCORE 2

1997 $28.00
1999 $30.50
2001 $32.00
2003 $33.50
2005 $35.50

Correct answer–Answer in the range of $30 - $40 ($35.50)

Add $1.50 then $2.50 then $1.50 then $1.50 then $2.00

Correct explanation

Exemplary Response

8 **Use the information in the** table on Page 4 to **complete** this problem. if **the** trend **in the cost of passes continues, what** do you predict would be the cost of a one-day **pass in the year 20051 In the box below, explain** how you arrived at **vour** answer.

SCORE 1

I think it will be 34 because I just repeated the process on the chart.

*Correct prediction with no **explanation**— answer in the range of* **$30** - $40

Session 1

142980

22

8 Use the information in the table on Page 4 to complete this problem. If the trend in the cost of passes continues, what do you predict would be the cost of a one-day pass in the year 2005? In the box below, explain how you arrived at your answer.

SCORE 0

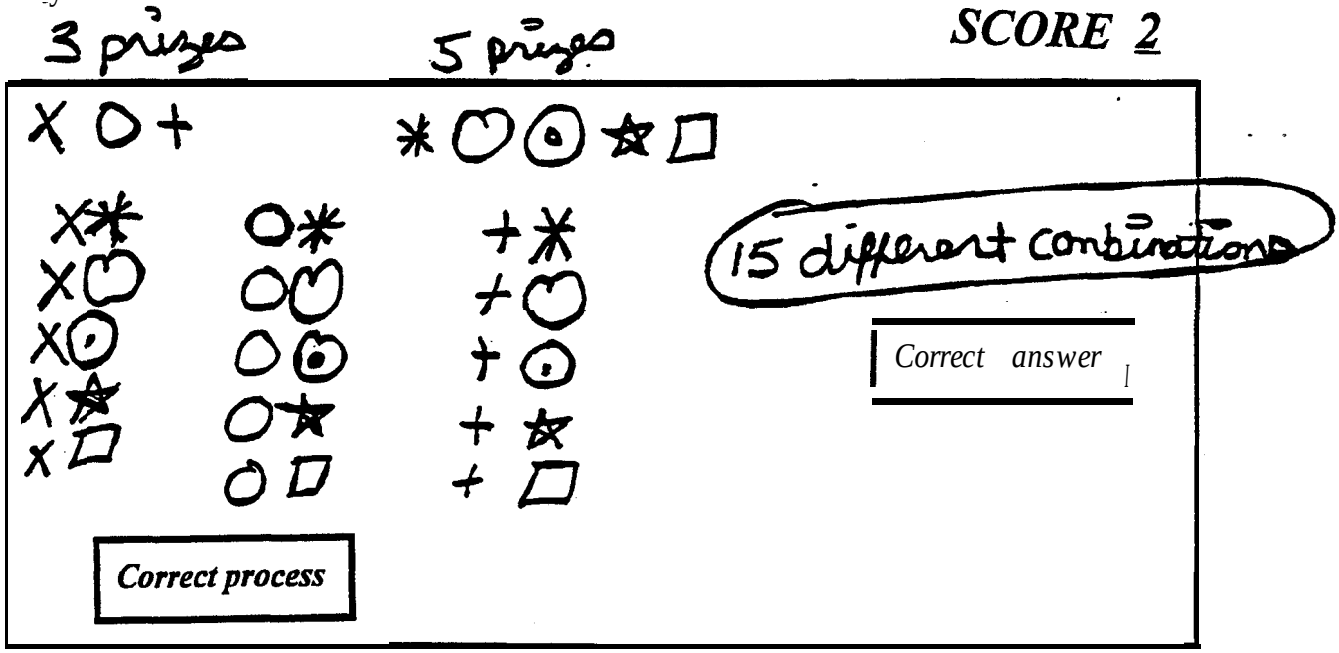
96 - 28.50 4
97 - 31.50 4½
98 - 35.50 5
99 - 39.50 5½
2000 - 44.50 6
2001 - 50.50 6
2002 - 56.50 6½
2003 - 63.50 7
2004 - 70.50 7½
2005 - 78.00 8

Incorrect explanation

It would be $78.00 because you add half every time

Incorrect prediction— not in the range of $30 - $40

9 Fun land has two very popular games on the midway. One of the games has 3 different prizes you can win and the other game has 5 different prizes. How many different combinations of one prize from each game could a player win? In the box below, provide the work that shows how you arrived at your answer.



Exemplary Response

9

Fun Land has two very popular games on the midway. One of the games has 3 different prizes you *can* win and the other game has 5 different prizes. How many different combinations of one prize from each game could a player win? In the box below, provide the work that shows how you arrived at your answer.

SCORE 1

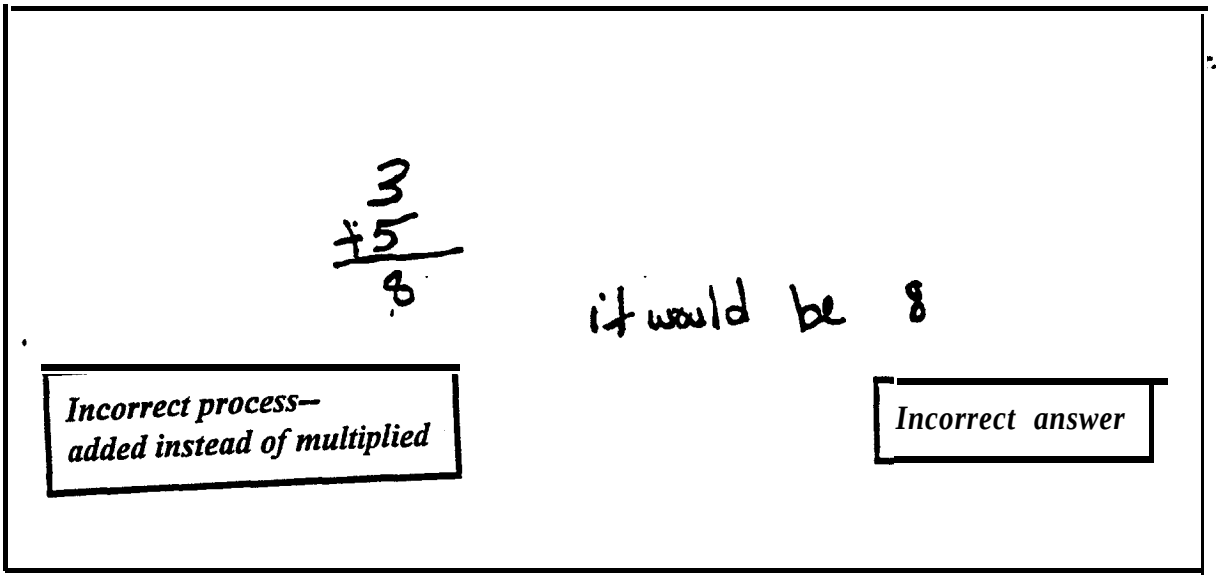
there are 15 different combinations

Correct answer

No process shown

9 Fun Land has **two** very popular games on the midway. One of the games has 3 different prizes you can win and the other game has 5 **different** prizes. **How** many different combinations of one prize from each game could a **player** win? In the **box below,** provide the work that shows how you arrived at your answer.

SCORE 0



SCORE 4

quantity	Fish	Length	cost
3	Angelfish	3 in each. 9 in total	$8.95 each $26.85 total
3	Clownbarb	1¼ in each 3¾ in total	$1.45 each $4.35 total
2	Gourami	2½ in each 5 in total	$3.95 each $7.90 total
4	Mollie	1½ in. each 6 in. total	$2.45 each $9.80 total
3	Neon Tetra	¾ in. each 2¼ in. total	$1.25 each $3.75 total
15		26 in total	$52.65 total
	Plants		
1	Fan Plant	6 in each 6 in. total	$1.95 each $1.95 total
2	Sword Plant	12 in each 24 in total	$5.95 each $11.90 total

26 in
52.65

5 kinds of fish
2 kinds of plants
26 in. of fish total
total cost is $66.50

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1 ANCHOR SCORE POINT 4

Student 's response filly addresses the performance event
Effectively *communicates all steps of the solution*

- *The total cost is between $6.5 and $75*
- *The number of plants purchased was at least 2 and did not exceed IO*
- *The number of hinds* ***of fish*** *purchased was at least 5*
- *Gives the total length of the fish--Extra information with respect to giving inches of plants does not* ***effect*** *the reasonableness of the solution*
- *Puts it into a table*

Budget "65 to"/5 must not
5 kinds of fish 35 must not exceed
2 kinds of plants not exceed 10

10

SCORE 3

Name	Cost	Length (in)	Total
Fish			
Angelfish	$8.95	3	$8.95
ClownLoach	$5.95	3	$5.95
Redtail Shark	$5.95	3	$5.95
Gourami	$3.95	$2\frac{1}{2}$	$3.95
Silver Hatchets	$2.95	$\frac{3}{4}$	$2.95
			27.75
Plants			
Sword Plant	$5.95 • 7 (# of plants)	12	$41.65
Wisteria	$2.95 • 1	12	$2.95
		Grand Total =	$72.35

Go

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1 *ANCHOR* *SCORE POINT 3*

Student 's response substantially addresses the performance event

Communicates most steps of the solution

- *The total cost is between $6.5 and $75*
- *The number of plants purchased was at least 2 and did not exceed IO*
- *The number of kinds of fish purchased was at least 5*
- *Puts it into a table*

The response fails to

- *Give total length of the fish*

10

SCORE 2

Fish:

4 algae eaters → 5.80
3 guppies → 1.05
2 Angelfish → 17.90
1 Catfish → 1.95
1 Clown Barb → 1.45
2 Red Tailed Sharks → 11.90

Plants:

2 Fan Plants → 3.90
4 Elodea → 3.00
1 Wisteria → 2.95
3 Sword Plants → 17.85

$40.05 fish
$27.70 plants
$67.75 total

Session 1

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1	*ANCHOR*	*SCORE POINT 2*

Student 's response partially addresses the performance event
Communicates some steps of the solution

- *The total cost is between $65 and $75*
- *The number of plants purchased was at least 2 and did not exceed 10*
- *The number of kinds of fish purchased was at least 5*

The response fails to

- *Give the total length of the fish*
- ~~*Does not put the information in the form of a table*~~
  Does not put the information into a complete organized way. (Have to infer what columns mean)

10

SCORE 2

	Name	Cost	Length
	Red tail shark	$5.95	3
	Platy	.95	1/2
	Guppy	.35	1
	Algae Eater	1.45	1
	Neon Tetra	1.25	3/4
Plants	Elodea	.75	8
Plants	Fan Plant	1.95	6
Plants	Wisteria	2.95	12
	Total	$15.60	7 1/4 in.

13857 1

33

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1 *ANCHOR* *SCORE POINT 2*

Student's response partially addresses the performance event
Communicates some ***steps*** *of the solution*

- *The number* ***of plants*** *purchased was at least 2 and did not exceed IO*
- *The number of kinds* ***of fish*** *purchased was at least 5*
- *Puts it into a table*

The response fails to

- *Stay in the range of $6.5 and $7.5*
- *Did not use more than one of* ***any fish--lack*** *of statistical understanding*

4. 5 world Plant $5.95 \times 4 = 23.80$

3 Redtail Sharks $5.95 \times 3 = 17.85$

2. Platy $.95 \times 2 = 1.90$

3. Angelfish $8.95 \times 3 = 26.85$

$23.80 + 17.85 = 41.65$

$41.65 + 1.90 = 43.55$

$43.55 + 26.85 = 70.40$

SCORE 1

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1 *ANCHOR* *SCORE POINT 1*

Student's response minimally addresses the performance event
Communicates few steps of the solution

- *The total cost is between $65 and $75*

The response fails to

- *Give the total length of the fish*
- *Does not purchase at least 2 plants*
- *Does not purchase at least 5 kinds of fish*
- *Does not put the information in the form of a table*

36

10

Angelfish $8.95
Catfish $1.95
Neon tetra $1.25
Redtail Shark $5.95
Silver Hatches $2.95

Sword Plant $5.95
Fan Plant $2.95

SCORE 0

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1	*ANCHOR*	*SCORE POINT 0*

Other-- *Work* *indicates no mathematical understanding of the task*

- *The number ofplantspurchased was at least 2 and did not exceed 10*
- *The number of kinds of fish purchased was at least 5*

The response failed to

- *Does not give a total cost*
- *Does not give the total length of the fish*
- *Does not put the information in the form of a table*

38

1998

INTERMEDIATE

MATHEMATICS

ANCHOR PAPERS

SESSION 2

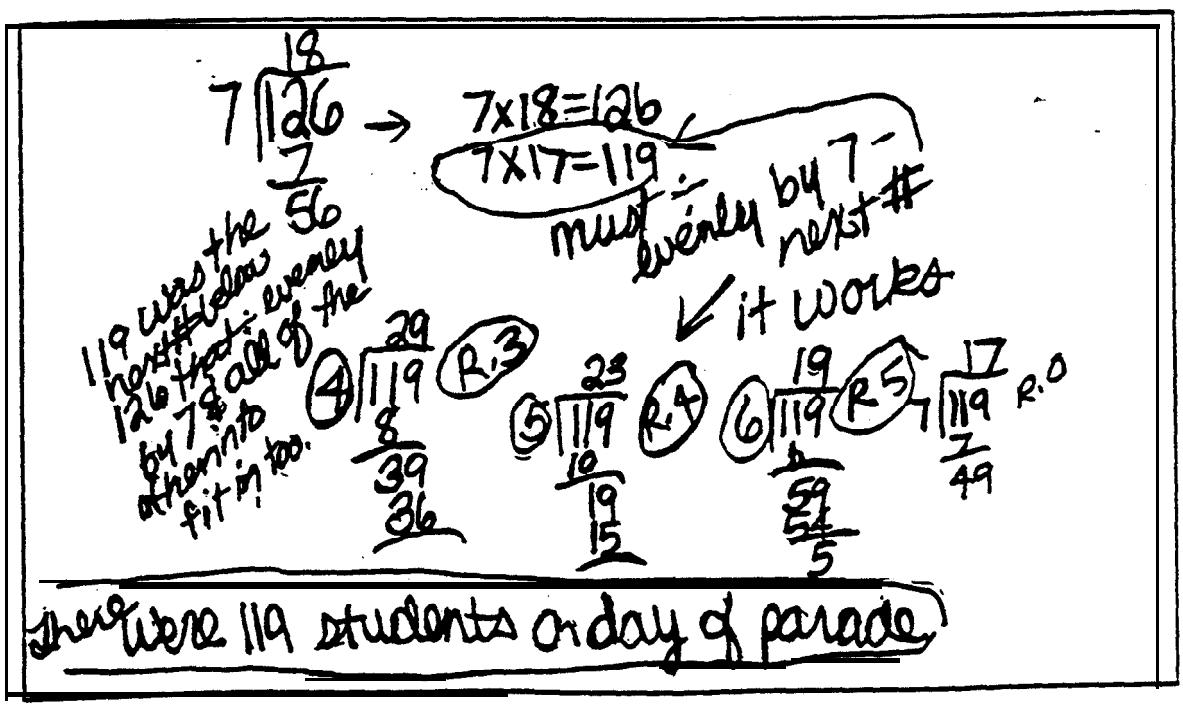
Directions

Show all of your work and write your answers **directly in** this booklet SCORE 4

1 Your local high school marching band is marching in today's state fait parade. The band, composed of 126 students, usually marches in **21** rows of 6 students each. Due to illness, several band members are unable to march in today's parade.

As drum major, **you** must assist the band director in rearranging the students into rows of equal numbers of students. When you tried **4** students in each row, the last row was 1 student **short.** The results were the same when rows of 5 and 6 students were arranged. When **you** arranged the band into rows of **7** students, all rows were complete.

Use the above information to determine how many students showed up to march in the parade. In the box below, expiain how you found the number of students that were present on the day of **the** parade.



175443

Go On

MISSOURI MATH
FORM B
GRADE 8

ITEM 1/ SESSION 2	*ANCHOR*	*SCORE POINT 4*

Student 's response fully addresses the performance event
Effectively communicates all steps of the solution

- *Determines which multiple meets the requirement of one student short in each row (119 ÷ 4 = 31 r2, 119 ÷ 5 = 23 r4, 119 ÷ 6 = 19 r5)*
- *Gives a multiple of 7 (126 ÷ 7 = 18)*
- *Shows how they arrived at 119 (I26 - 7 = 119)*
- *Student clearly communicates process-119 was the next # below 126 that ÷ evenly by 7 and all of the other into fit in too*

40

SCORE 3

Directions

Show **all** of your work and **write** your answers **directly** in this booklet

Your **local** high **school** marching band is **marching** in today's **state** fair parade. The band, composed of **126** students, **usually marches** in **21** rows of **6** students each. Due to illness, **several** band members are **unable** to march in today's parade.

As drum major, you **must assist** the band **director** in rearranging the students into **rows of equal numbers of students. When you tried 4 students in each row, the last** row **was** 1 student **short. The results** were the **same when rows** of **5** and 6 **students** were arranged. **When** you **arranged the band into rows of 7 students, all** rows were complete.

Use the **above** information to determine how many **students** showed up to march in the parade. In **the** box **below, explain how you found the** number of students that were present on the day of the parade.

18
7)126
126
−7
119

31 r2
4)126

29r3
4)119
8
39

29 r4
5)119
10
19
15
4

119 students present

19 r5
6)119
6
59
54
5

MISSOURI MATH
FORM B
GRADE 8

ITEM 1/ SESSION 2	*ANCHOR*	*SCORE POINT 3*

Student 's response substantially addresses the performance event
Communicates most steps of the solution

- *Determines which multiple meets the requirement of one student short in each row (119 ÷ 4 = 31 r2, 119 ÷ 5 = 23 r4, 119 ÷ 6 = 19 r5)*
- *Gives a multiple of 7 (126 ÷ 7 = 18)*
- *Shows how they arrived at 11 9 (I26 - 7 = 11 9)*

The response fails to

- *Give an explanation of their process*

42

SCORE 2

Directions

Show all of your work and write your answers directly in this booklet

1 **Your local high school marching band is marching in today's state fair parade. The band,** composed of **126 students,** usually marches **in 21 rows of 6** students each. Due to illness, several band members are unable to march in today's parade.

As drum major, you must assist the band **director in rearranging the students into rows of** equal numbers of **students.** When you tried **4** students in each row, the last *row* was 1 student short. The results were **the same when rows of 5 and 6 students were** arranged. When you arranged the band **into rows of 7 students, all rows were complete.**

Use the above information to determine **how many students showed** up **to-march in the parade.** In the box below, explain how you found the number of students that were present on the day of the parade.

7 14 21 28 35 42 49 56 63 70 77 84 91 98 105 112 119

000 3

31 ½

31 2

125 31 + 1

I made a picture to figure it out

119 students showed up

174097

Go On

MISSOURI MATH
FORM B
GRADE 8

ITEM 1/ SESSION 2	*ANCHOR*	*SCORE POINT 2*

Student 's response partially addresses the performance event
Communicates some steps on the solution

- *Gives multiples of 7*
- *Determines that there were 1 I9 students present*
- *Gives a partial explanation of the problem--I made a picture to-figure it out--shows the picture*

The response fails to

- *Determine which multiple meets the requirement of one student short in each row*

SCORE 1

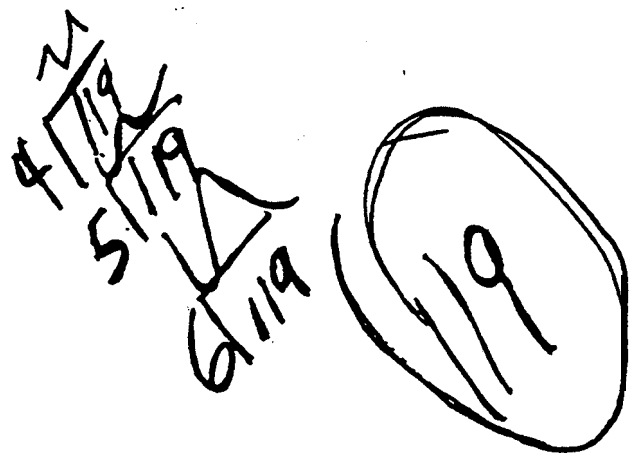
Directions

Show ail of **your** work and write your **answers directly** in this booklet.

Your local high **school** marching **band is marching** in today's **state** fair parade. The band, composed **of 126** students, **usually marches** in **21** rows of 6 students each. Due to **illness, several band** members are **unable to** march ***in*** **today's** parade.

As drum **major, you must** assist **the** band director in rearranging the students into rows of **equal** numbers of students. When **you tried 4** students in each row, the **last** row **was** 1 student **short.** The **results** were the same **when** rows of **5** and 6 students were arranged. **When you** arranged the band **into** rows of 7 students, **all** rows were complete.

Use the above information to **determine** how many students showed up to march in the parade. In the **box below, explain how you** found **the** number of students that were present **on** the day of the **parade.**



MISSOURI MATH
FORM B
GRADE 8

ITEM 1/ SESSION 2	*ANCHOR*	*SCORE POINT 1*

Student 's response minimally addresses the performance event
Communicates few steps of the solution

- *Gives the answer of 119 students*

The response fails to

- *Determine which multiple meets the requirement of one student short in each row.* ***Just showing*** *119 ÷ 4 = , 119 ÷ 5 = , 119 ÷ 6 = . is not enough to earn the student any credit*
- *No work was given*
- *Give an explanation of their process*

SCORE 1

Directions

Show ail **of your work and write** your answers directly in this booklet

1 Your local high school **marching** band is marching in today's state fair parade. The band, composed of 126 students, **usually** marches in **21 rows** of 6 students each. Due to illness, several band members are unable to march in today's parade.

As drum major, you must assist the band director in rearranging the students into rows of **equal** numbers of **students.** When you tried **4** students in each row, the last row was 1 student short. The results were the same when rows of 5 and 6 students were arranged. When **you** arranged the band into **rows** of **7** students, **all** rows were complete.

Use the above information to determine how many students showed up to march in the parade. In the box below, explain how you found the number of students that were present on the day of the parade.

17 • 7 = 119

If you had 17 rows of 7 students. 119 students showed up.

178937

Go On

MISSOURI MATH
FORM B
GRADE 8

ITEM 1/ SESSION 2	*ANCHOR*	*SCORE POINT 1*

Student's response minimally addresses the performance event
Communicates few steps of the solution

- *Gives the answer of 119 students*
- *Gives a multiple of 7--(17 x 7 = 119)*

The response fails to

- *Give an explanation of their process*
- *Determine which multiple meets the requiremenr of one student short in each row*

SCORE 0

Directions
Show **all** of **your** work and write your **answers directly** in this **booklet.**

Your local high school marching band **is marching** in **today's state** fair parade. The band, composed of **126** students, **usually marches** in **21 rows** of **6** students each. Due to **illness, several** band members are **unable** to **march** in today's parade.

As **drum major, you** must assist the band **director** in rearranging the students into **rows of equal** numbers of students. When **you** tried **4** students in each row, the **last row was 1** student **short.** The results were the same **when** rows of 5 and 6 students were arranged. When **you** arranged the band into rows **of 7** students, all **rows were complete.**

Use the above information to determine how many **students** showed up to march in the parade. **In** the **box below,** explain how you found the number of students that were present on the day of the parade.

126 ÷ 7 = 18

18 students were absent

MISSOURI MATH
FORM B
GRADE 8

ITEM 1/ SESSION 2	*ANCHOR*	*SCORE POINT 0*

Other-- Work indicates no mathematical understanding of the task

- *Gives a multiple of 7. but uses the number obtained as the answer to the problem*
- *Shows no understanding of the process*
- *Does not give an explanation of their process*

2

Each square inch of **honeycomb** contains **25 cells. How many cells would be found . in a** honeycomb that measures **8 inches by 12 inches? In** the **box below, provide the work** that shows how **you arrived** at your answer.

SCORE 2

Correct process

$8 \cdot 12 = 96$

$96 \cdot 25 = 2400$ cells

Correct answer

Exemplary Response

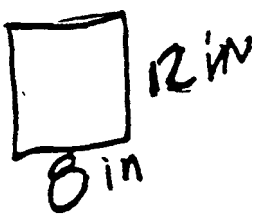
2 Each square inch of honeycomb contains 25 cells. How many cells would be found in a honeycomb that measures 8 inches by 12 inches? In the box below, provide the work that shows how you arrived at your answer.

SCORE 1

$8 \times 12 = 96 \div 25 = 3$

Correct area with process shown

Incorrect answer



2 Each square inch of honeycomb contains 25 cells. **How** many ceils would be found in a honeycomb that measures 8 inches by 12 inches? In the-box below, provide the work that shows how you arrived at your answer.

SCORE 0

(25×8) (25×12)

200 300

Incomplete process

200+300=500

Incorrect answer

500 cells in a honecomb

182718

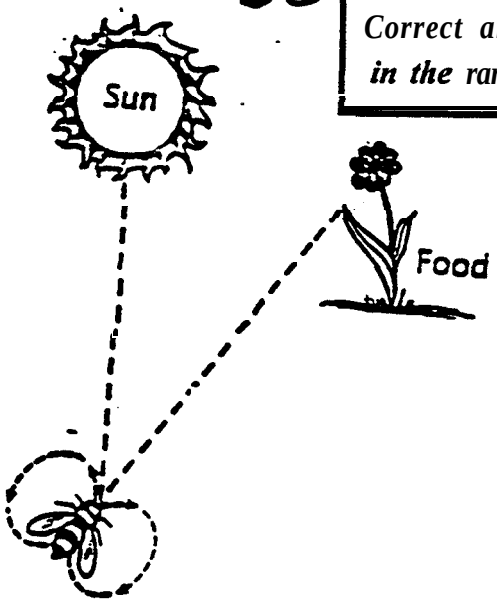
Go On

3 Use your protractor to help you solve this problem.

SCORE 1

A honeybee shows the location of food to other bees by dancing a figure-eight pattern inside the hive. The imaginary line between the loops of the figure eight indicates the position of the food in relation to the sun, as shown below.

What is the measurement of the angle between the sun and the honeybee's food?



Correct answer-Angle measures in the range of 33° to 37°

Exemplary Response

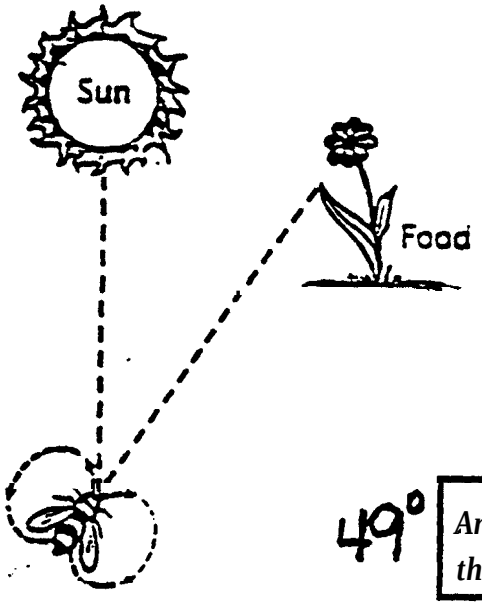
3

Use your protractor to help you solve this problem.

SCORE 0

A honeybee shows the location of food to other bees by dancing a figure-eight pattern inside the hive. The imaginary fine between the loops of the figure eight indicates the position of the food in relation to the sun, as shown below.

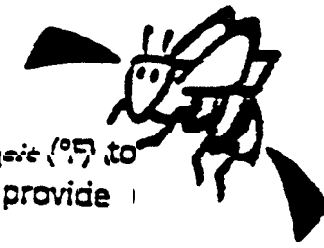
What is the measurement of the angfe between the sun and the honeybee's food?



49°

Angle measured is not within the acceptable range of 33° to 37°

4



The honeybee must have a body temperature of at least 85° Fahrenheit (°F) to be able to fly. What is this temperature in Celsius? In the box below, provide the work that shows how you arrived at your answer.

SCORE 2

$86°F = X°C$

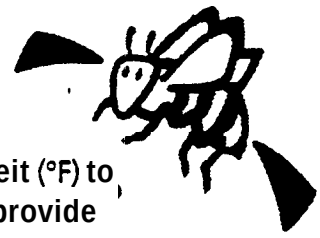
$X = \frac{5}{9}(86° - 32)$ *Correct process*

$X = \frac{5}{9}(54)$

$X = 30$ *Correct answer*

Exemplary Response

Session 2



The honeybee must have a body temperature of at least 86° Fahrenheit (°F) to be able to fly. What is this temperature in Celsius? in the box below, provide the work that shows how you arrived at your answer.

SCORE 1

Correct process

$C = \frac{5}{9}(85-32)$

$\frac{5}{9} \cdot 53 = \frac{265}{9}$

$85 - 32 = 53$

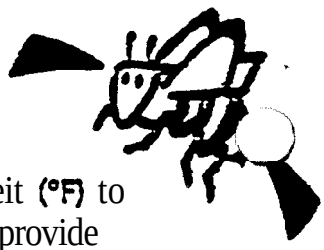
$53 \times 5 = 265$

27.2°C

Error in transcription– wrote 85 instead of 86

$9\overline{)265}$ → 27.2, -18, -65, -63, 2

Error in computation gives wrong answer



4

The honeybee must have a body temperature of at least 86° Fahrenheit (°F) to be abfe to fly. What is this temperature in Celsius? In the box below, provide the work that shows how you arrived at your answer.

SCORE 0

86° Fahrenheit
Celsius

$F = \left(\frac{9}{5}C\right) + 32$

$C = \frac{5}{9}(F - 32) = -64$

$= -64°$

No process

Incorrect answer

The eighth graders at your school decided to create a plan for an outdoor lunch yard where students could eat their lunch during nice weather. Before approaching the principal, the students Made a scale drawing to help them present their idea.

5

Use *your ruler* to help you solve this problem.

The students thought it would be nice to include a fl ower garden in the lunch area. What is the *actual* area of the flower garden? In the box below, provide the work that shows how you arrived at your answer. Be sure to include the unit of measure for the area of the flower garden with your answer.

SCORE 3

1½ inches = 8+4 = 12
2½ inches = 16+4 = 20

12b x 20 h = $\frac{240}{2}$

120 sqft

Correct process

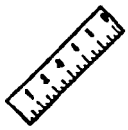
Correct answer

Exemplary Response

Session 2

The eighth graders at your school decided to create a plan for an outdoor lunch yard where students could eat their lunch during nice weather. Before approaching the principal, the students made a scale drawing to help them present their idea.

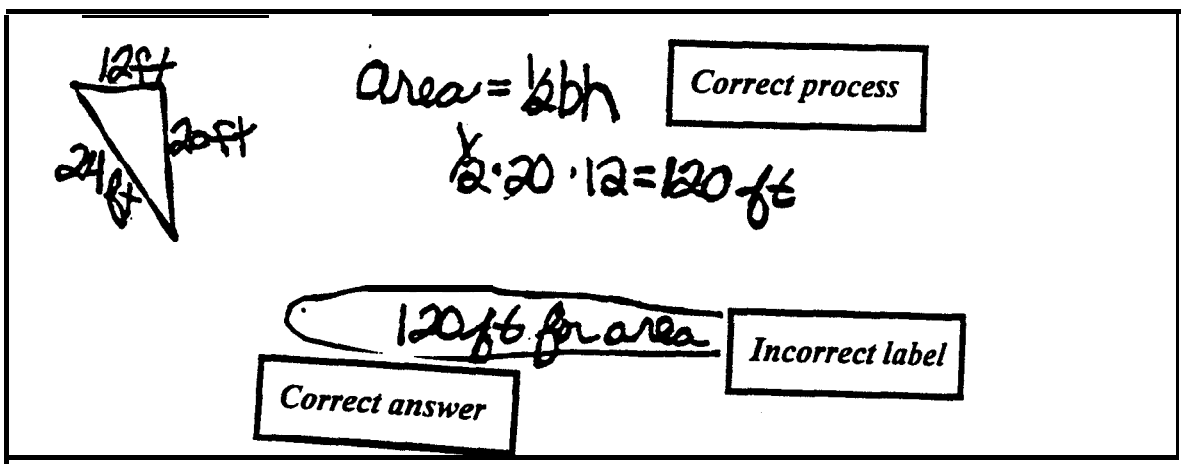
5



Use your ruler to help you solve this problem.

The students thought it would be nice to include a flower garden in the lunch area. What is the *actual* area of the flower garden? In the box below, provide the work that shows how you arrived at your answer. Be sure to include the unit of measure for the area of the flower garden with your answer.

SCORE 2



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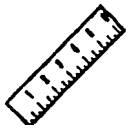
5



Use your ruler to help you solve this problem.

The students thought it would be nice to include a flower garden in the lunch area. What is the *actual* area of the flower garden? In the box below, provide the work that shows how you arrived at your answer. Be sure to include the unit of measure for the area of the flower garden with your answer.

SCORE 1

8+4=12x
16+4=F 20x
16+8 24

the area will be 1920

One correctprocess shown for that process-conversion of inches to feet

Incorrect answer

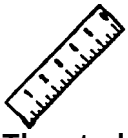
136146

Session 3

61

5

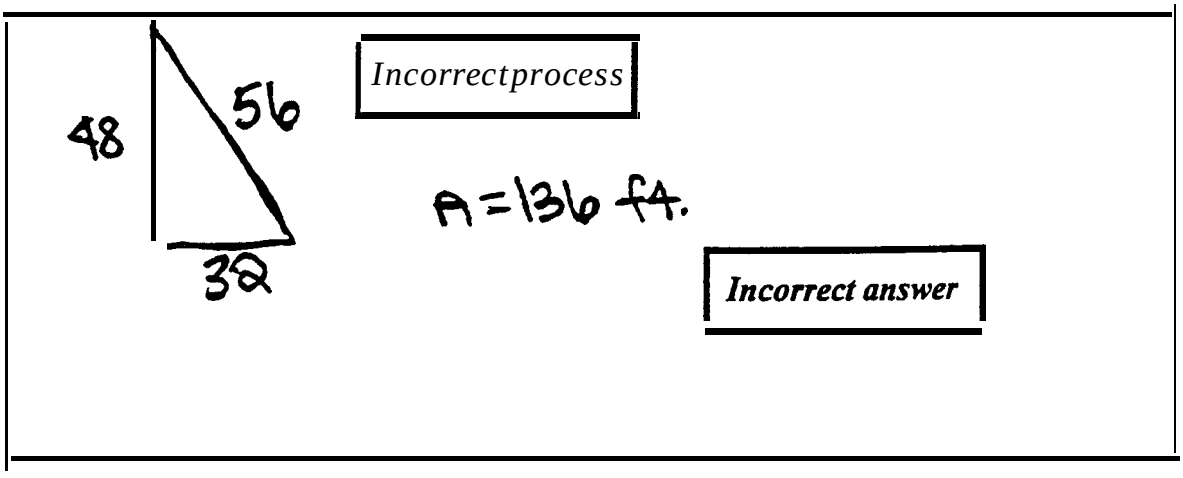
The eighth graders at your school decided to create a plan for an outdoor lunch yard where students could eat their lunch during nice weather. Before approaching the principal, the students made a scale drawing to help them present their idea.



Use your ruler to help you solve this problem.

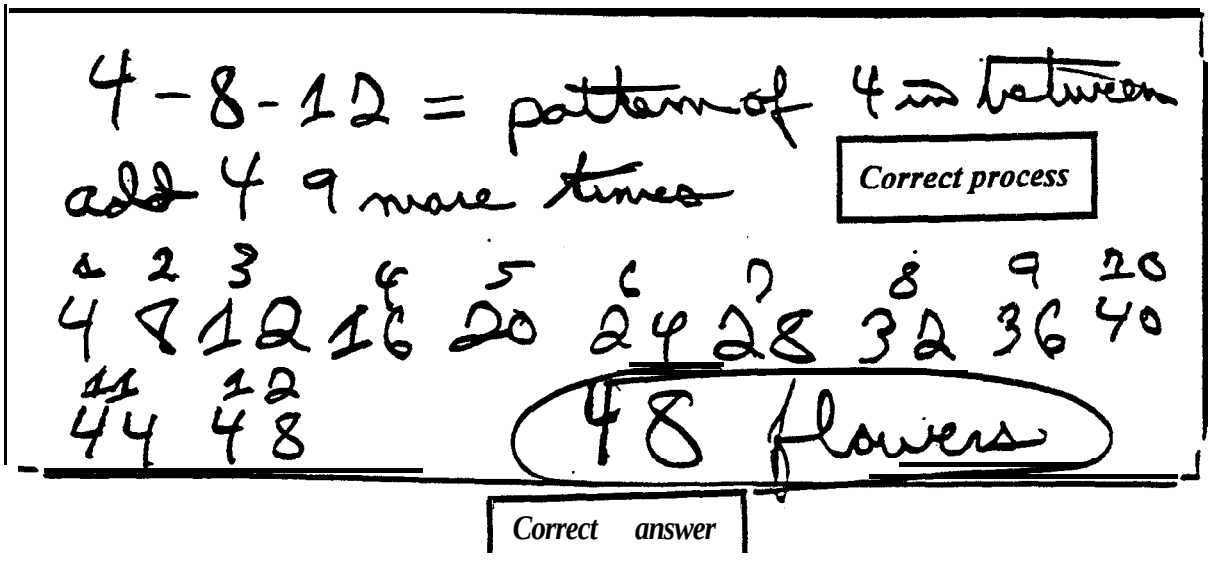
The students thought it would be nice to include a flower garden in the lunch area. What is the *actual* area of the flower garden? In the box below, provide the work that shows how you arrived at your answer. Be sure to include the unit of measure for the area of the flower garden with your answer.

SCORE 0



6 The students want to plant flowers in rows to fit the garden's shape. The first row will have 4 flowers, the second row will have 8 flowers, and the third row will have 12 flowers. If the pattern continues, how many flowers will be in the twelfth row? In the box below, provide the work that shows how you arrived at your answer.

SCORE 2

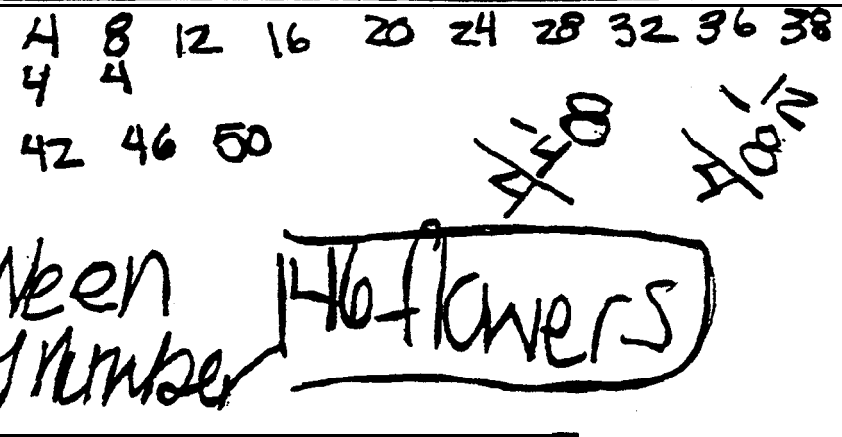


Exemplary Response

The students want to plant flowers in rows to fit the garden's shape. The first row will have 4 flowers, the second row will have 8 flowers, and the third row will have 12 flowers. If the pattern continues, how many flowers will be in the *twelfth* row? In the box below, provide the work that shows how you arrived at your answer.

SCORE 1.

Correct process



Error in computation gives wrong answer-got off track when they added 2 to 36 and went back to adding 4

Session 2

186812

64

6 The students want to plant flowers in rows to fit the garden's shape. The first row will have 4 flowers, the second row will have 8 flowers, and the third row will have 12 flowers. If the pattern continues, how many flowers will be in the ***twelfth*** row? In the box below, provide the work that shows how you arrived at your answer.

SCORE 0

$12-3=9\times4=36+24=60$ Flowers in last row

Incorrect process

Incorrect answer

Go On

Session 2

109762

65

7

SCORE

DEAR Principal,

We put out 165 gallons of garbage and recycled goods each day. We have done research to find out which Garbage can would be cheaper yet still hold enough garbage. Garbage can B is the Best one to get it holds 34 gallons of trash so we only need to get 5, which will cost $69.95. Garbage Can A only hold 30 gallons so you would need to get 6, which would cost $71.94. ($2.00 less). We recomend you get garbage Can B to save money.

Sincerly,
Your loving Students

Correct response

Correct process

Exemplary Response

7

SCORE 2

Dear Principal,

Hello!

Correct recommendation

we the eighth-grade students, think you should consider "Garbage can B"! We think this because this can holds 4 more gallons than can A, and with can a you would have to buy 6 garbage to hold 165 gallons of trash, but with can B you only have to buy 5 cans.

Thank

Partial justification–figured out they would need 6 of trash can A and 5 of trash can B

#7

SCORE

Garbage can B.
It holds more, it's plastic and
it's bigger but we have to
pay more.

Correct recommendation

7

SCORE 0

Dear Principal,

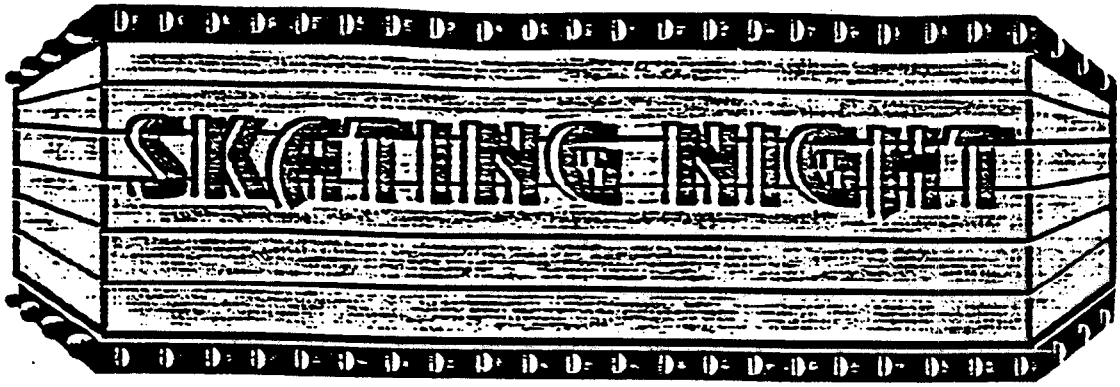
This is a letter regarding the choice of which garbage can to use for the outdoor lunch yard. We recommend you use Gabage Can A. It is cylinder in shape, 3ft tall w/a 1ft. radius. It will hold 30 gallons + is made up of galvanized steel. the cost per trash can is $11.99. Garbage can B will hold 11 gallons more, but it is made of plastic which would probably not hold up as well a steel. I hope we have made a good decision for the lunch yard!

Thanks,

Incorrect answer

Justification given was insufficient to score– no matlematical understanding of why trash can B should be chosen

Repeats information given– no mathematical understanding of the task



Directions

Numbers **1 through 6 are** about a school skating **night** Show ail of your work **and write** your answers **directly** in **this booklet.**

a

The **student council** at **your school** wants to sponsor a **family** skating night at a local roller rink. The **skating night** is going to be a fundraiser to **help purchase** new sports equipment for the **school. The** students have discussed how to encourage ticket safes so that there **will** be a good turnout for the **event.**

They decide that each of the 5 student officers **will call** 5 eighth graders to tell **them** about the skating **night.** Each of those eighth graders **will call 3 seventh** graders. Assuming that **no person** is **called** more than once, **how** many **seventh** graders **would** be called? In the-box **below,** provide the **work** that shows how **you** arrived at **your answer.**

SCORE 2

5 x 5 = 25 eighth graders

25 x 3 = 75 7th graders

Correct process

Correct answer

Exemplary Response

Directions

Numbers 1 through 6 are about a school skating night. Show all of your work and write your answers directly in this booklet

8 **The student council at your school wants to sponsor a family skating night at a local roller rink. The skating night is going to be a fundraiser to help purchase new sports equipment for the school. The students have discussed how to encourage ticket sales so that there will be a good turnout for the event.**

They decide that each of the 5 student officers will call 5 eighth graders to tell them about the skating night. Each of those eighth graders will call 3 seventh graders. Assuming that no person is called more than once, how many seventh graders would be called? In the box below, provide the work that shows how you arrived at your answer.

SCORE 1

5 × 5 = 25

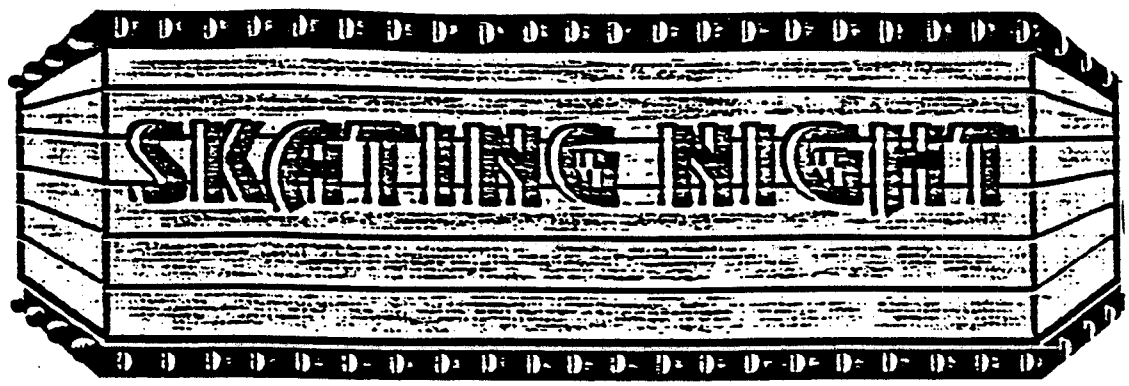
25 × 3 = 625

625 7th graders

Correct process

Error in computation gives wrong answer

155660



Directions

Numbers 1 through 6 are about a school skating night. Show all of your work and write your answers directly in this booklet.

a

The student council at your school wants to sponsor a family skating night at a local roller rink. The skating night is going to be a fundraiser to help purchase new sports equipment for the school. The students have discussed how to encourage ticket sales so that there will be a good turnout for the event.

They decide that each of the 5 student officers will call 5 eighth graders to tell them about the skating night. Each of those eighth graders will call 3 seventh graders. Assuming that no person is called more than once, how many seventh graders would be called? In the box below, provide the work that shows how you arrived at your answer.

SCORE 0

5
x 3
15 seventh graders

Incomplete process

Incorrect answer– 15 seventh graders

5 = 8th graders
3 = 7th graders each

3+3+3+3+3